ORIGINAL

BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
The Establishment of Policies and Service Rules	)	IB Docket No. 99-81
for the Mobile Satellite Service in the 2 GHz Band	)	RM-9328

To: The Commission

REPLY COMMENTS OF THE ICO USA SERVICE GROUP

BT NORTH AMERICA, INC.

Cheryl Lynn Schneider
Chief Regulatory Counsel, Americas
BT North America Inc.

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HUGHES TELECOMMUNICATIONS AND SPACE COMPANY

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TRW INC.

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Philip A. Bonomo
Leventhal, Senter & Lerman P.L.L.C.

July 26, 1999

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SUMMARY

The ICO USA Service Group ("IUSG") believes that the many problems identified by various commenters in this proceeding with each of the 2 GHz MSS licensing plans described by the Commission in its NPRM serve to highlight the utility and value of the IUSG Negotiated Entry Approach ("INEA"). The IUSG is convinced that the INEA responds effectively to all of the 2 GHz MSS system proponents' legitimate concerns with regard to the licensing of their systems, while appropriately leaving the choice of spectrum for particular systems and access technologies to the marketplace. The INEA is also the only band plan discussed to date in this proceeding that addresses in satisfactory fashion the vital issue of the relocation of incumbent 2 GHz licensees -- an undertaking without which no 2 GHz MSS will be possible.

Although a number of commenters raise certain concerns regarding the merits of the Commission's Negotiated Entry Approach -- of which the INEA is an adaptation -- the IUSG submits that its INEA provides effective and efficient solutions to each such issue identified. Among other things, the INEA will allow no MSS market entrant an unfair advantage over any other in access to 2 GHz spectrum; it will produce the most efficient possible use of that spectrum; it will simplify to the greatest extent possible the international coordination of 2 GHz MSS system operations; and it will in no way limit the access of later MSS market entrants to system financing. In addition, the INEA incorporates and is designed to facilitate the relocation of 2 GHz MSS incumbent licensees and the equitable sharing of relocation costs among MSS operators without regard to date of entry.

The critical flaws in the other licensing proposals discussed in this proceeding are readily apparent in the mutually contradictory comments of the other parties. Many parties observe or reveal that the Flexible Band Arrangement will produce serious inefficiencies in the use of

spectrum and the design of 2 GHz MSS systems, and that the plan is likely to hamper the growth of any such systems that achieve a measure of success. Other parties fault the Traditional Band Arrangement for its inflexibility, observing that it will inevitably result in spectrum warehousing and will create more problems in the international coordination of 2 GHz MSS systems than it will resolve. Globalstar offers a licensing plan of its own that borrows vital elements of the Commission's Negotiated Entry Approach, but would require all 2 GHz MSS systems to adopt a particular access technology at a time when some systems -- most significantly, the system that will be first to market -- have already committed themselves to other system designs. Not surprisingly, all Applicants strongly oppose the notion of 2 GHz MSS spectrum auctions as harmful to the future of 2 GHz MSS and global satellite service in general. None of these licensing plans offers the simplicity or efficiency of the INEA, or even attempts to incorporate a feasible means of relocating 2 GHz terrestrial incumbent licensees.

In spite of their differences with regard to licensing options, the commenters largely support the IUSG's proposals regarding other aspects of the Commission's proposed 2 GHz MSS service rules. No commenter objects, for example, to the general use of the Big LEO rules as a template for 2 GHz MSS service rules. Many parties agree with the IUSG that the Commission should extend the license term of 2 GHz MSS systems to 12 years or more, and there is also support for the grant to 2 GHz MSS licensees of a renewal expectancy.

Most 2 GHz MSS system proponents, including one that proposes a GSO MSS system, agree that GSO MSS system operations should be conducted only in 2 GHz spectrum that has been allocated for regional operations. The one GSO system operator that disagrees clearly has technical means at its disposal to conform its planned operations to a regional spectrum assignment.

Most 2 GHz MSS system proponents also support the strict enforcement of developmental milestones, and many recommend the use of milestones in addition to those proposed by the Commission in the NPRM. The Commission must not be swayed by those commenters that seek more lax milestone requirements so as to be able to retain unused spectrum for years while they attempt -- or decide whether to attempt -- to implement their systems.

Virtually all 2 GHz MSS system proponents urge the Commission to ensure that all first-round 2 GHz MSS systems have received the spectrum they need before the Commission dispenses spectrum unused by another first-round system, if any, in a second processing round. Many commenters also would support a requirement that 2 GHz MSS systems feature frequency agility. Indeed, such agility is essential for implementation of the INEA, which can only guarantee all 2 GHz MSS entrants the right to negotiate meaningfully for spectrum in the 2 GHz MSS bands if all entrants can relocate their operations as necessary.

Most commenters do not support the Commission's proposed artificial incentives for MSS system operators to provide MSS to underserved communities, observing that such incentives are unnecessary and will only be abused by system proponents seeking unfair advantages over their competitors. Almost all 2 GHz MSS system proponents also oppose a requirement that E911 technology be incorporated into 2 GHz MSS systems, on grounds that incorporating such technology at this late date would be unduly burdensome as well as inequitable -- given that the Big LEO systems with which 2 GHz MSS systems will compete are not required to offer E911 service.

Lastly, the IUSG opposes the imposition of an anti-trafficking rule regarding 2 GHz MSS licenses on non-U.S.-licensed 2 GHz MSS systems that filed Letters of Intent ("LOIs") in this

Lastly, the IUSG opposes the imposition of an anti-trafficking rule regarding 2 GHz MSS licenses on non-U.S.-licensed 2 GHz MSS systems that filed Letters of Intent ("LOIs") in this proceeding. The Commission has no jurisdiction to impose such a rule on LOI filers. The Commission also should not impose on ICO Services Limited any rule preventing ICO from transferring spectrum to any party it chooses unless the Commission imposes the same rule on all 2 GHz MSS licensees.

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BT North America Inc., Hughes Telecommunications and Space Company, Telecomunicaciones de Mexico and TRW Inc. (together, the "ICO USA Service Group" or "IUSG"),[1] by their attorneys and pursuant to Sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. §§ 1.415, 1.419, hereby reply to the comments filed by various parties with regard to the Commission's Notice of Proposed Rulemaking in the above-captioned proceeding.[2]

I. Introduction

Based on the comments filed on the NPRM, it appears at first blush that the nine parties seeking authority to provide MSS in the 2 GHz bands[3] can agree on little but that none of the

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1 The IUSG is comprised of established communications-oriented companies that are investors in ICO Services Limited ("ICO"), and which may also be providers of ICO mobile satellite services ("MSS") in the United States.

2 The Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band, IB Docket No. 99-81, RM-9328 (FCC 99-50), slip op. (released March 25, 1999) ("NPRM").

3 These parties include The Boeing Company ("Boeing"); Celsat America, Inc. ("Celsat"); Constellation Communications, Inc. ("Constellation"); Globalstar, L.P. ("Globalstar"); ICO; Inmarsat Ltd. ("Inmarsat"); Iridium LLC ("Iridium"); Mobile

(continued...)

licensing options for 2 GHz MSS systems set forth in the NPRM is adequate as proposed. Many of the Applicants, for example, agree that the Commission's proposed Flexible Band Arrangement is fundamentally flawed. Many others, however, agree that the rigidity of the Traditional Band Arrangement discussed in the NPRM renders it unworkable. Globalstar offers a licensing plan that contains elements of the Commission's Negotiated Entry Approach but is simply impracticable, and all responsible parties to the instant proceeding agree that the assignment of 2 GHz MSS spectrum by auction would be a disastrous policy mistake.

The seemingly irreconcilable differences among the Applicants as to how the Commission should divide up the available 2 GHz bands require the Commission to ask itself why it should attempt to apportion spectrum for particular MSS systems or access technologies at all. The IUSG is convinced that its IUSG Negotiated Entry Approach ("INEA") -- an adaptation of the Negotiated Entry Approach, which itself was criticized by a number of the Applicants -- responds to all of the Applicants' legitimate concerns with regard to the licensing of 2 GHz MSS systems while leaving the choice of spectrum for particular systems and access technologies to the marketplace. The INEA is also the only band plan discussed to date in this proceeding that addresses in a satisfactory manner the vital issue of the relocation of incumbent 2 GHz licensees --

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[3](...continued)
Communications Holdings, Inc. ("MCHI"); and TMI Communications and Company ("TMI"). The foregoing parties will be referenced hereinafter as the "Applicants," notwithstanding the fact that ICO, Inmarsat and TMI have not applied for licenses from the Commission but rather have filed Letters of Intent ("LOIs") seeking authority to provide service in the United States as foreign-licensed entities.

an undertaking without which no 2 GHz MSS will be possible.[4]

In the interests of quickly establishing a viable 2 GHz MSS in which all qualified systems can compete fairly, the IUSG urges the Commission to adopt and implement the INEA without delay.

II. The INEA is the Most Effective and Efficient Solution to the Various Concerns Raised by Commenters Regarding the Establishment of 2 GHz MSS.

Although a number of commenters raise several concerns regarding the merits of the Commission's Negotiated Entry Approach, the IUSG submits that its INEA provides effective and efficient solutions to each such issue identified. Among other things, the INEA will allow no MSS market entrant an unfair advantage over any other in access to 2 GHz spectrum; it will produce the most efficient possible use of that spectrum; it will simplify to the greatest extent possible the international coordination of 2 GHz MSS system operations; it will in no way limit the access of later MSS market entrants to system financing; and, unlike all other licensing plans

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[4] As the IUSG observed in its Comments in the Commission's 2 GHz MSS allocation proceeding, the Commission faces the following principal challenges in determining 2 GHz relocation policies: (1) to act swiftly in devising rules and policies to accommodate the unique circumstances of 2 GHz MSS operations so that the U.S. public can benefit when the earliest 2 GHz MSS licensees begin to provide service worldwide; (2) to implement a relocation procedure in such a manner as to minimize the logistical and financial burden to all parties concerned; and (3) to establish procedures for the accommodation of MSS operations that will serve as a model to the world for the opening of markets to foreign-licensed MSS systems -- in keeping with the Commission's commitment to open the U.S. market for satellite service to foreign competition -- rather than as an excuse for other nations to establish market entry barriers. See Comments of the ICO USA Service Group, ET Docket No. 95-18 (filed February 3, 1999) ("IUSG Relocation Comments") at 3.

proposed in this proceeding, it incorporates and is designed to facilitate the relocation of 2 GHz MSS incumbent licensees and the equitable sharing of relocation costs among MSS operators without regard to date of entry.

A. The INEA Will Give No Market Entrant An Unfair Advantage Over Any Other in Access to 2 GHz Spectrum.

A number of Applicants argue in their comments that use of the Negotiated Entry Approach would give early entrants to the 2 GHz MSS bands the ability and incentive to exclude later arrivals and/or delay the international coordination of U.S.-licensed 2 GHz MSS systems.[5] The INEA, however, has been carefully designed to prevent such problems by guaranteeing all entrants to the 2 GHz MSS marketplace sufficient spectrum with which to commence operations, and by offering a reliable mechanism for the resolution of disputes among system proponents.

More specifically, and as set forth in greater detail in Attachments A and B hereto,[6] the INEA contemplates that all qualified applicants and LOI filers will be granted conditional licenses or other appropriate conditional authority to establish their respective satellite systems promptly

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[5] See, e.g., Iridium Comments at 20; MCHI Comments at 3-6, 12; Globalstar Comments at 18; Inmarsat Comments at 10-11; Celsat Comments at 8; Constellation Comments at 16.

[6] Attachment A to the instant pleading contains a set of proposed rules for purposes of implementing the INEA. Although the refined INEA rules set out in Attachment A are slightly different from those proposed by the IUSG in its comments in this proceeding (see IUSG Comments at Exhibit A), they serve the same purpose — to assure later entering MSS systems of access to spectrum without financial disadvantage. Attachment B hereto provides illustrations of how the INEA would work in practical application.

after the issuance of the Commission's Report and Order in the instant proceeding.[7] All Conditional Licensees will proceed to construct their proposed systems in accordance with strict developmental milestones, as discussed further below. At such time as a Conditional Licensee is one year from the scheduled launch of its first satellite and has met all its milestones and satisfied certain other requirements, it will be granted a full license or other appropriate final authority[8] and will become eligible to coordinate its system with those of other Licensees.[9]

The new Licensee will either (1) negotiate with prior Licensees for a portion of the spectrum that they have previously cleared; (2) clear new spectrum of incumbent terrestrial licensee operations (on its own or in cooperation with one or more prior Licensees); or some combination of the two. If the new Licensee seeks to use previously cleared spectrum or to clear new spectrum with the assistance of prior Licensees, and if the combined efforts of the new Licensee and prior Licensees do not result in the clearing of the spectrum specified by the new Licensee prior to the launch of the new Licensee's 2 GHz MSS system, the new Licensee will be entitled to interim use of up to 2.5 MHz of already cleared 2 GHz MSS spectrum in each

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[7] Recipients of such conditional licenses or other conditional authority will hereinafter be referenced as "Conditional Licensees."

[8] LOI filers, naturally, will receive a form of authority other than an FCC license. Recipients of final licenses or other appropriate final authority are hereinafter referenced as "Licensees."

[9] More specifically, a system proponent will be found eligible to coordinate its system with other MSS entrants once it has (1) filed a request for ITU frequency coordination; (2) met its developmental milestones; and (3) demonstrated that it has entered into an unconditional launch contract and is within one year of launch of its first satellite. See IUSG Comments at 9.

direction.[10] In this situation, the new Licensee would be required to compensate the prior affected Licensees for the spectrum that it uses on such an interim basis in accordance with the relocation cost equalization procedures discussed immediately below.

So as to ensure that no Licensee derives unfair advantage by establishing operations in 2 GHz MSS bands that are less expensive to clear of terrestrial incumbent licensee operations than are bands employed by other Licensees, the INEA equalizes the relocation costs per MHz for each Licensee. Payments for purposes of sharing such costs equally should be made in accordance with a strict time schedule shortly after a Licensee notifies the Commission of any spectrum that it has cleared and provides evidence of the sums it has paid to do so.[11]

Should any Licensee believe that another is not participating in good faith in the system coordination or incumbent licensee relocation processes, it may file with the FCC a petition for relief. Replies, responses and Commission action on such Petition would proceed on an expedited basis so as to assure a speedy resolution to the dispute.[12]

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10 See Attachment A hereto, draft Rule § 25.xxx.

11 See id. at draft Rule § 25.zzz. As noted above, the IUSG included in its Comments in this proceeding an earlier iteration of the rules for implementing the INEA's competitive safeguards that are appended hereto as Attachment A. See IUSG Comments at Exhibit A. The IUSG hereby clarifies that § 25.zzz(d) of those initial draft rules was intended to apply to all 2 GHz MSS Licensees. Thus, any 2 GHz MSS licensee that can demonstrate to the Commission that it is able to share co-frequency with incumbent terrestrial licensees and whose operation would thus not require their relocation shall be exempt from the INEA's cost equalization provisions except to the extent that it makes use of spectrum previously cleared by other 2 GHz MSS licensees.

12 See Attachment A hereto, draft Rule § 25.yyy.

The IUSG believes that the foregoing features of its refined INEA provide full and fair protection to the rights of qualified 2 GHz MSS system proponents to compete in the 2 GHz MSS bands and respond meaningfully to the expressed concerns of various Applicants in this regard. For example, the INEA's dispute resolution provision addresses, and hopefully resolves, MCHI's uncertainty as to the adequacy of the Commission's good faith safeguards to guarantee the availability of spectrum to later MSS entrants to the 2 GHz MSS bands.[13]

Constellation worries that early decisions regarding segmentation of the 2 GHz MSS band under a Negotiated Entry Approach between CDMA and Time Division Multiple Access ("TDMA") operations, or between geostationary ("GSO") and nongeostationary ("NGSO") satellite system operations, might become obstacles for later entrants that seek to "optimize their capacity in the resultant sharing environment."[14] The IUSG, like Constellation, has concerns about the division of the 2 GHz MSS bands into segments for CDMA and TDMA operations. As discussed further below, the INEA therefore does not contemplate any a priori segmentation of the bands for that purpose, and would instead allow Licensees to make their own decisions as to which access technology to adopt and whether or not to share the spectrum in which they operate

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[13] See MCHI Comments at 12. The IUSG notes that MCHI supports the use of good faith safeguards in the context of negotiations for access to core spectrum under the Flexible Band Arrangement among applicants proposing satellite systems that would employ Code Division Multiple Access ("CDMA") technology. See id. at 6-8 & n.17. It therefore seems clear that MCHI has no qualms about relying on good faith safeguards per se, provided that they are employed in an effective manner.

[14] See Constellation Comments at 16.

with other Licensees. As to the division of the 2 GHz MSS bands into GSO and NGSO segments, the IUSG merely proposes that qualified GSO MSS systems be licensed to operate in 2 GHz bands designated for Region 2 operations -- the very same proposal made by Constellation itself.[15]

Contrary to the views of MCHI and Constellation, requiring negotiation and agreement on the various system proponents' rights to spectrum prior to entry by any party into the 2 GHz MSS bands would not facilitate equitable or rapid establishment of 2 GHz MSS.[16] Rather, it would surely delay it. As Globalstar observes, "[b]ecause each system has a different timetable for development and launch, incentives to delay achieving agreement would still exist" in any negotiations among all systems prior to establishment of a band plan.[17] Celsat is even more apprehensive of such a requirement, arguing that delay will be "inevitable" if negotiations among the Applicants must be finalized prior to launch and operation of any MSS systems.[18]

By means of the protective measures described above, the INEA will permit satellite

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15 See id. at 8.

16 See MCHI Comments at 14-17; Constellation Comments at 17.

17 Globalstar Comments at 19. See also TMI Comments at 6.

18 See Celsat Comments at 14. The FCC must reject, however, Celsat's claim that non-U.S.-licensed systems "will have no incentive to be reasonable with regard to spectrum location and technical coordination" because reaching agreement will not impact their ability to launch and operate elsewhere. Id. at 14. Quite obviously, such systems would not be seeking entry to the U.S. market if they did not see value in serving it, and the goal of entry is incentive enough to negotiate in good faith. In any case, and as noted above, good faith negotiations by all parties will be an enforceable requirement of the INEA.

operators to enter the 2 GHz MSS bands as soon as they are ready to provide service. Thus, the INEA will prevent delays in the provision of service to the user public that would otherwise result as current Applicants haggle endlessly over the proper design of a 2 GHz MSS band plan, or as the FCC attempts to dictate a band plan that has little chance of maximizing spectrum efficiency.

The IUSG urges the Commission to note that there is significant support for the IUSG's position that no a priori 2 GHz MSS band plan need be established for the Commission to permit the commencement of operations by qualified 2 GHz MSS systems. Globalstar, for example, endorses the early entry of systems pursuant to Special Temporary Authority as they reach operational status in advance of the establishment of any band plan.[19] Celsat, too, endorses this concept.[20] In addition, and as discussed further below, Celsat indicates that such "interim use" of spectrum may facilitate the early provision of 2 GHz MSS service to the public by allowing early entrants to operate in bands in which there is much less traffic and in which relocation costs are consequently lower and sharing opportunities between MSS systems and incumbent licensees may be greater.[21] The IUSG submits that early market entry as permitted by the INEA affords the very same rapid provision of service to the user public as would the STAs proposed by Globalstar and Celsat -- and, given the protective measures described above, would pose no threat to the viability

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19 See Globalstar Comments at 22.

20 See Celsat Comments at 11.

21 See id.

of subsequent market entrants' systems.[22]

B. The Result of the Commission's Implementation of the INEA Will Be the Most Efficient Possible Use of 2 GHz MSS Spectrum.

The IUSG challenges Globalstar's assertion that the gradual market entry afforded by the Negotiated Entry Approach would "result in a hodgepodge of assigned frequencies that would not necessarily produce the optimal use of spectrum . . ."[23] The INEA will allow individual system proponents to negotiate for the spectrum that would most optimally suit their needs at a time when they have clearly determined those needs -- rather than years beforehand, as the Commission's other proposals would require. Furthermore, and as discussed further below, 2 GHz MSS spectrum that is not yet selected for use by satellite operators will remain available for 2 GHz terrestrial incumbent licensee operations -- thus ensuring that it does not lie fallow, as it might if incumbent licensees were relocated from bands designated for an MSS system's use prior

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[22] MCHI lends support to this view and to the concept of relocation cost averaging as incorporated in the INEA, arguing that such a requirement "should prevent initial entrants from obtaining windfall benefits by claiming spectrum that is less densely utilized by incumbent 2 GHz licensees." MCHI Comments at 24 & n. 60. The Commission must reject, however, MCHI's proposal that early entrants that relocate incumbents and thereby benefit later entrants should be entitled to payment by later entrants of a proportionate share of the relocation costs incurred minus a "depreciation" factor. See id. at 24. MCHI's proposal represents an inappropriate penalty on early entry. As early entry causes no "depreciation" to the spectrum being used or to any other factor that concerns subsequent entrants, early entrants derive no undue "windfall" by reaching the market ahead of their competitors.

[23] Globalstar Comments at 18.

to the time that such a system achieved operational status.[24]

Contrary to the fears of Iridium with regard to a Negotiated Entry Approach, the INEA will not prevent the efficient sharing of spectrum by systems employing CDMA multiple access technology.[25] There is no reason why two or more CDMA system operators cannot negotiate to share a particular portion of the 2 GHz MSS bands amongst themselves, thus achieving more efficient use of available spectrum and, as a result of the INEA's relocation cost averaging mechanism, substantially reducing the sum that each must pay to relocate 2 GHz MSS incumbent licensees. Indeed, TMI acknowledges that Commission participation is not needed for such private arrangements to be established.[26] There is therefore no purpose in the Commission dividing the 2 GHz MSS band into CDMA and TDMA segments in implementing a Negotiated Entry Approach such as the INEA, as MCHI urges.[27]

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[24] Globalstar's proposed use of STAs -- to be followed by the imposition of an a priori band plan -- will not result in as efficient a use of spectrum as the INEA would produce. See id. at 22. While satellite operators obtaining STAs would be able to make efficient use of 2 GHz MSS spectrum for a time, the forced establishment of a predetermined a priori band plan could require the costly relocation of their initial operations and would result in all the inefficiencies described in Section III below. In all likelihood, a further rulemaking proceeding would also be necessary for purposes of revising the a priori band plan to accord with reality when MSS systems become operational.

[25] See Iridium Comments at 20.

[26] See TMI Comments at 7.

[27] See MCHI Comments at 14-17. As explained further below in the context of the IUSG's discussion of the Commission's proposed Flexible Band Arrangement, such a division of the 2 GHz MSS bands would also require system operators to commit to particular access technologies well before the time that such a commitment is

(continued...)

MCHI need not worry that the INEA would result in an "endless series of increasingly complex coordination negotiations with an increasing numbers of applicants."[28] In the first place, there is widespread agreement among the commenters in this proceeding that there will be significant attrition among current 2 GHz MSS system proponents over time,[29] and negotiations among those that actually enter the 2 GHz MSS bands will therefore inevitably be far simpler than those required to establish an a priori band plan for up to nine satellite systems. Secondly, entry by satellite systems under the INEA is likely to be gradual rather than en masse, and negotiations for any particular band of spectrum are likely to involve two or three system operators at most.

C. Implementation of the INEA Will Minimize the Challenges Posed by International Coordination of 2 GHz MSS Systems.

MCHI also expresses concern that a Negotiated Entry Approach would hinder the Commission's international coordination of U.S. 2 GHz licensees' systems by preventing the Commission from identifying the portion of the 2 GHz band in which individual Licensees will operate worldwide until all current system proponents that receive licenses have coordinated access to the band amongst themselves.[30] In fact, however, the Commission need not wait for all system proponents to achieve or fail to achieve operational status before coordinating a particular

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[27](...continued)
necessary or prudent.

[28] See id. at 12.

[29] See, e.g., Celsat Comments at 7-8, 10; Globalstar Comments at 9; Boeing Comments at 21.

[30] See MCHI Comments at 13-14.

Licensee's system. Under the INEA, the Commission would undertake to coordinate internationally the spectrum that a Licensee proposes to use once domestic inter-system coordination is completed with any prior 2 GHz MSS entrants. The Commission will only need to re-coordinate the assignment at a later date if a subsequent entrant displaces the Licensee in question. The INEA is therefore preferable to a priori band planning, which, by its nature, would complicate the international coordination process by requiring the coordination of an entire band plan and then necessitate the re-coordination of much or all of that plan every time a Conditional Licensee modifies or fails to complete its proposed satellite system.

Contrary to the views of certain commenters,[31] it would not be appropriate for the Commission to pressure foreign administrations that have already authorized operations by 2 GHz MSS systems to alter those authorizations so as to conform to any a priori U.S. 2 GHz MSS band plan. As the Commission acknowledges, the instant proceeding is the first in which it has taken into account LOIs from non-U.S. licensed satellite systems. Such systems have no choice but to conform to spectrum assignments made by the administrations that have licensed them. As most proposed 2 GHz MSS systems are global in nature, some have already obtained authority to operate in particular bands in several countries.[32] The FCC cannot reasonably demand that authorizations previously granted by foreign administrations to non-U.S.-licensed satellite systems be effectively nullified for the sake of the band plan that the FCC chooses to establish for service

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31 See, e.g., Boeing Comments at 34-35; MCHI Comments at 19-20; Globalstar Comments at 47-48; Iridium Comments at 15 n.22, 57-61.

32 See Boeing Comments at 34.

in the United States.[33]

It is a fallacy that the U.S. 2 GHz MSS band plan must be identical with those plans adopted abroad for U.S. 2 GHz global MSS systems to be able to function effectively. In fact, both GSO and NGSO system operators are eminently capable of designing their satellites to operate on, or switch to, different frequencies worldwide as necessary depending on the region of the world that the satellites are serving at a particular time. While it would concededly be more simple for a global satellite system operator to operate its system worldwide within a single spectrum sub-band, the Commission should attempt to harmonize spectrum assignments globally only at the behest of individual licensees as those licensees attain operational status. The Commission should not go to the time and effort, or expend the international political capital, to do so for the sake of an a priori band plan designed for applicants that, in many cases, may never launch satellite systems.

The Commission need take no action to resolve Iridium's complaint that the CEPT band

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[33] On a related point, the IUSG notes that Globalstar is correct in opposing the Commission's suggestion that designations of spectrum for non-U.S. licensed systems be conditioned on successful coordination internationally. See Globalstar Comments at 47. As Globalstar observes, the Commission is not responsible for coordination of non-U.S. licensed systems and cannot impose its designation of spectrum on other countries. See id. at 47-48. The Commission should reject MCHI's proposal that LOI filers be required to complete international coordination by a date certain, subject to penalty for failure. See MCHI Comments at 21-22. Penalties for non-compliance with this requirement would be inequitable and unreasonable, as the pace of international coordination is not within any system proponent's control.

plan contains no provisions for negotiated entry or other post-licensing arrangements.[34] Iridium's concern is that the plan does not require a satellite operator that has secured access to the European 2 GHz MSS band by 2001 to enter into immediate negotiations with latecomers to that band such as Iridium.[35] Given that Iridium did not file a request for spectrum in the CEPT band plan at the time that such requests were permitted, it cannot be heard to demand immediate access to the subject spectrum now. Iridium will have ample opportunity to seek spectrum for purposes of serving Europe when the CEPT band plan is revisited, as it will be at least every two years in accordance with the decision of the European Conference of Postal and Telecommunications Administrations ("ERC").[36]

D. Establishment of the INEA Will Not Limit Later 2 GHz MSS Entrants' Access to Financing.

Contrary to the suggestions of several parties, later 2 GHz MSS entrants will in no way be disadvantaged in obtaining financing by the Commission's use of a Negotiated Entry

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[34] See Iridium Comments at 20.

[35] See id.

[36] See ERC Decision of 30 June 1997 on the Harmonised Use of Spectrum for Satellite Personal Communication Services (S-PCS) Operating Within the Bands 1610-1626.5 MHz, 2483.5-2500 MHz, 1980-2010 MHz and 2170-2200 MHz (ERC/DEC/(97)03) at 5 (¶ 10). The IUSG objects strongly to Iridium's request that the Commission "look at . . . *unused* MSS spectrum controlled by one of the LOI filers in this proceeding" in order to ensure access for U.S.-licensed 2 GHz MSS systems abroad. Iridium Comments at 15, 60 (emphasis added). This apparent reference to the spectrum to which ICO has been assigned in Europe is entirely unjustified, as Iridium knows, given that ICO is not yet even scheduled to have commenced service.

Arrangement.[37] This erroneous notion appears to be based largely on the concern -- unsupported by any extrinsic evidence -- that financiers will hesitate to extend funds to a satellite system that is not guaranteed a set amount of spectrum in particular spectral sub-bands.[38]

The INEA, however, guarantees licensees sufficient spectrum with which to commence service within the already allocated 2 GHz MSS bands.[39] Furthermore, the various other competitive safeguards of the INEA described above will ensure any reasonable potential financier that a viable MSS system will obtain access to the 2 GHz MSS spectrum it needs. The IUSG has also provided the Commission with letters from representatives of two financial institutions prominent in the financing of satellites, indicating that a system operator does not need government assurances of access to particular spectrum frequencies as a precondition of financing or assistance in obtaining such financing.[40]

E. The INEA is the Only Licensing Plan That Incorporates and is Designed to Facilitate the Relocation of 2 GHz MSS Incumbent Licensees.

As the Commission must recognize, no viable 2 GHz MSS can be established unless 2 GHz incumbent licensee operations with which MSS systems cannot share spectrum are

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37 See, e.g., MCHI Comments at 13 & n.32, 5 n.12; Globalstar Comments at 19; Constellation Comments at 18; Celsat Comments at 17.

38 See, e.g., Constellation Comments at 19.

39 See Attachment A hereto, draft Rule § 25.xxx.

40 See IUSG Comments at Exhibit B.

relocated[41] from the bands that MSS system operators plan to use. This view is strongly supported by the Society of Broadcast Engineers, Inc. ("SBE"), which cautions the Commission that all of its spectrum-specific proposals with regard to implementation of 2 GHz band plans "are premature and may never come to pass" if MSS system operators cannot effectuate relocation of incumbent TV Broadcast Auxiliary Service users.[42] Such relocation obviously cannot take place unless sufficient funds are available to pay for it, and the Commission has held that it is 2 GHz MSS operators that are responsible for relocating 2 GHz incumbent licensee operations. MSS operators' ability to cover the cost of relocation will be substantially affected by the manner in which the Commission implements whatever 2 GHz MSS licensing plan it ultimately selects.[43]

In spite of these well-recognized facts, there is virtually no mention of the issue of incumbent licensee relocation in the comments of the Applicants in this proceeding. MCHI, for example, declines to comment on the issue of relocation on the peculiar grounds that the nature of the relocation process will depend on the method of 2 GHz MSS licensing that the Commission

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41 In these Reply Comments, the term "relocation" is meant to include all forms of incumbent operational modifications necessary to permit 2 GHz MSS, including literal relocation out of existing frequency bands, the replacement or modification of some or all of an incumbent licensee's equipment such that continued operation in existing frequency bands is possible, and simple retuning.

42 See SBE Comments at 2. Although the abbreviation "BAS" is sometimes used to refer solely to the Broadcast Auxiliary Service, in these Reply Comments that term will collectively refer to the Broadcast Auxiliary Service, the Cable Television Relay Service ("CARS") and the Local Television Transmission Service ("LTTS").

43 See IUSG Comments at 15-16.

selects.[44] Iridium argues that all incumbents should be relocated from the 2 GHz MSS bands prior to commencement of MSS at 2 GHz, but offers no suggestion as to how such relocation could possibly be accomplished.[45]

As the IUSG has previously explained, the cost of simultaneously relocating from the 2 GHz MSS bands all incumbent licensees that may interfere with MSS operations would be too large even for all 2 GHz MSS systems together to bear, and a more reasonable relocation obligation could only be borne by 2 GHz MSS operators if divided fairly among them.[46] Many of the Applicants, however, will not be able to afford to pay for their fair share of an incumbent licensee relocation effort until their proposed systems are closer to, or have achieved, operational status. Because all 2 GHz MSS systems will not achieve that status at the same time, the first MSS system or systems that are ready to enter the 2 GHz bands would be prevented from providing service until other system proponents are able to contribute relocation funds. The user public would thus be deprived of the benefits of 2 GHz MSS service for years.

The INEA would redress this problem by permitting a gradual relocation of incumbent 2 GHz licensees from the 2 GHz MSS bands only as satellite systems enter the bands.[47] Early 2 GHz MSS entrants would be free to select the bands in which they wish to commence service, and could choose bands in which incumbent licensee operations are at a minimum. By these

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[44] See MCHI Comments at 23.

[45] See Iridium Comments at 19, 61.

[46] See IUSG Comments at 15.

[47] See id. at 15-16.

means, the INEA would reduce disruption to current incumbent licensee operations while simultaneously lightening the burden of relocation costs on early 2 GHz MSS entrants. Both Celsat and Constellation confirm the merits of this approach.[48]

Significantly, the INEA also contemplates limiting disruption to incumbent licensee operations by relocating those operations methodically in accordance with current incumbent licensee channelization schemes.[49] By this means, the INEA will allow incumbent licensees to continue their activities in the remaining 2 GHz MSS bands until such time as departure from those bands may be necessary. Planned consolidation of incumbent operations will also reduce the number of incumbent facilities requiring relocation, thereby limiting 2 GHz MSS relocation costs. The various and conflicting views of the commenters as to how much spectrum the Commission should initially make available to 2 GHz MSS licensees, and whether it should assign that spectrum in units of 1.25 MHz or units of some other size, all ignore the nature of 2 GHz incumbent licensee operations and the importance of introducing 2 GHz MSS in a manner that keeps disruption of those operations to a minimum.[50]

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[48] See Celsat Comments at 11 (noting that "interim use" of 2 GHz MSS spectrum has the potential to reduce relocation costs by allowing early entrants to operate in bands in which there is less traffic and, therefore, greater opportunities for MSS/incumbent sharing); Constellation Comments at 15-16 (urging the Commission to adopt a transitional relocation policy for incumbent licensees so as to minimize the cost of terrestrial relocation during the early years of 2 GHz MSS operations). See also MCHI Comments at 24 & n.60 (acknowledging that early entrants can reduce relocation costs by choosing less densely utilized spectrum).

[49] See IUSG Relocation Comments at 23-26.

[50] See, e.g., Globalstar Comments at 15-16; Boeing Comments at 19; Iridium

(continued...)

In sum, of all the band plan options discussed by commenters, only the INEA addresses adequately the relocation component of establishing the 2 GHz MSS.

III. The Conflicting Comments of the Other Parties in this Proceeding Reveal the Shortcomings of the Various Licensing Plans That They Espouse.

The critical flaws in the other licensing proposals discussed to date in this proceeding stand out clearly in the often-conflicting comments of other parties. Various parties observe or reveal that the Flexible Band Arrangement will produce serious inefficiencies in the use of spectrum and the design of 2 GHz MSS systems, and is likely to hamper the growth of any such systems that achieve a measure of success. Other parties fault the Traditional Band Arrangement for its inflexibility, noting that it is sure to result in spectrum warehousing and will create more problems in the international coordination of 2 GHz MSS systems than it will solve. Globalstar's own 2 GHz MSS licensing proposal is simply unrealistic, and all Applicants strongly oppose the notion of 2 GHz MSS spectrum auctions. None of these licensing plans offers the simplicity or efficiency of the INEA, or even attempts to incorporate a feasible means of relocating 2 GHz terrestrial incumbent licensees.

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[50](...continued)

Comments at 17. Iridium does acknowledge that "a 1.25 MHz assignment segment may make it very difficult for 2 GHz MSS licensees to coordinate sharing arrangements with incumbent terrestrial fixed service ("FS") licensees in the 2165-2200 MHz band." Id. Iridium's solution to that problem, however, is the wholesale, simultaneous relocation of those FS licensees -- a notion that is not only unrealistic but tremendously wasteful, given the potential for FS/MSS spectrum sharing.

A. The Flexible Band Arrangement is Fundamentally Flawed.

The Flexible Band Arrangement is flawed in its essence in that, as with any a priori band plan, the Commission cannot hope to predict accurately the spectrum needs of satellite systems that, after inevitable modification, may or may not achieve operational status years from now. Each difficulty with the Flexible Band Arrangement that is reflected in the comments filed in this proceeding stems from this central problem.

At the outset, the Commission would be likely to have great difficulty even in designing a Flexible Band Arrangement that would satisfy the differing requests of the various system proponents. MCHI, for example, accepts the Commission's proposal to grant qualified applicants an initial assignment of 2.5 MHz in each direction.[51] Constellation, however, argues that MSS systems should be accorded 3.75 MHz of spectrum in both directions upon entering the 2 GHz bands, and that the Commission should not keep expansion spectrum in reserve.[52] Inmarsat, as discussed further below, favors the use of expansion spectrum but would prefer to divide the 2 GHz MSS bands into nine separate segments in each direction.[53] Celsat supports the Flexible Band Arrangement but asks that an exception be made so that it can operate both its CDMA and its TDMA "primary spectrum segments" in the same core sections of the TDMA GSO portion of

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51 See MCHI Comments at 5.

52 See Constellation Comments at 11-13.

53 See Inmarsat Comments at Annex I.

the 2 GHz band.[54] The Commission would surely find the lengthy task of resolving these differences (and those that have not yet surfaced) daunting, particularly in the absence of any reliable way of judging unbuilt systems' true needs or viability.

The Flexible Band Arrangement would also greatly complicate the task of coordinating 2 GHz MSS systems internationally. No matter how carefully a plan might be designed under that approach, it would unavoidably require constant re-adjustment and re-coordination as the various parties that received 2 GHz MSS system licenses modified their system proposals over the next several years or failed to achieve operational status -- at least, if the Commission wishes to prevent large swaths of the available spectrum from lying fallow or going under-utilized. Every such change will require re-engineering of the plan, and concomitant re-coordination with foreign administrations at the Commission's time and expense.

The difficulties that the Flexible Band Arrangement's approach can create appear most starkly in the version of that plan proposed by Inmarsat, which, as noted above, would involve the division of both the 2 GHz MSS uplink and downlink bands into nine separate segments -- none wider than 5 MHz.[55] Under this arrangement, the failure of a single satellite system to attain operational status -- or the modification of its parameters -- could force the re-design and re-coordination of the entire band scheme. Failure to readjust the plan in light of such a development could result in the effective doubling of the spectrum available to a single MSS Licensee -- a

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[54] See Celsat Comments at 8 n.9.

[55] See Inmarsat Comments at Annex I.

development that other MSS competitors are unlikely to accept.

Recognizing the spectrum inefficiencies that would arise under the Commission's Flexible Band Arrangement and the burden that would fall on the Commission in attempting to correct them, Inmarsat proposes that 2 GHz MSS system operators -- rather than the Commission -- conduct a periodic review of the 2 GHz MSS band plan once it is established.[56] Under Inmarsat's plan, MSS operators, in addition to reviewing actual spectrum use by different operators, would also assess the progress made by different planned systems against their developmental milestones in order to accommodate such systems with enough spectrum for their future needs.[57] The idea, however, that numerous MSS competitors -- many of whom might be far from operational status -- could regularly and effectively validate one another's future spectrum usage, analyze one another's spectrum requirement forecasts and apportion expansion spectrum or adjust existing spectrum shares as Inmarsat suggests is highly questionable. Furthermore, should the Licensees actually prove capable of reaching periodic agreements on adjustments to the 2 GHz MSS band plan, their decisions would only force the Commission to re-coordinate that plan internationally again and again -- irrespective of the then-current prospects for some, or many, of the system operators. The IUSG fails to see how such gyrations would serve the interests of the Commission, the MSS industry operators or the user public.

Globalstar criticizes the Flexible Band Arrangement based on the Commission's proposal

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[56] See id. at 4-5.

[57] See id.

to award access to expansion spectrum in accordance with system operators' traffic and need, noting that it is unclear how such need would be determined.[58] The IUSG agrees, and urges the Commission to view the unwieldy and burdensome procedure advocated by MCHI for testing such need as an indication of the contentiousness with which system operators would undoubtedly approach each proposed assignment of expansion spectrum.[59] Disputes over such matters would naturally delay the expansion of 2 GHz MSS systems in response to market demand, thereby denying valuable services to the public.

On the other hand, as Constellation observes, the use of expansion spectrum in the 2 GHz MSS band plan in the absence of an effective means of evaluating the merits of a system operator's request for such spectrum could result in inequities.[60] Constellation would resolve this problem by initially assigning each 2 GHz MSS entrant a larger portion of spectrum than would the Commission -- 3.75 MHz in each direction -- and would consider as "expansion spectrum" only that spectrum which goes unused after systems that are assigned to it fail to achieve operational status. The "expansion spectrum" identified by Constellation would be assigned on a "proportionate" basis -- presumably, in equal portions -- to each existing 2 GHz MSS system.[61]

Constellation's proposal has merit to the extent that it would prevent the large portion of "expansion spectrum" set aside in the Commission's proposal from lying fallow for years, as it

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58 See Globalstar Comments at 16-17.

59 See MCHI Comments at 8-9 & nn. 21, 22.

60 See Constellation Comments at 13.

61 See id.

apparently would otherwise do. Constellation's suggestion is also, however, problematic in its own right. Those systems that are the first to outgrow their initial 3.75 MHz assignments under Constellation's plan would be denied any additional spectrum until such time as other systems fail to meet their construction milestones and the spectrum can be re-assigned. In addition, it appears that all systems would be granted a "proportionate" amount of expansion spectrum regardless of their need for it -- hardly an efficient use of a valuable resource. The Commission would do better to assign spectrum in accordance with the INEA, which foregoes the use of expansion spectrum entirely and instead allows each MSS system operator to coordinate for the amount of spectrum that it requires at the time it requires it.[62]

The IUSG supports, however, Constellation's view that the Flexible Band Arrangement would force premature commitments by satellite system operators to particular access technologies.[63] The IUSG directs the Commission's attention to Constellation's observation that new research is underway in the area of air interface standards for the next generation of mobile and personal communications services, including a satellite component, which may significantly

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[62] MCHI asserts that the prospect of obtaining expansion spectrum under the Flexible Arrangement Plan will give 2 GHz MSS licensees a valuable incentive to build out their systems, commence service and generate customer traffic expeditiously. See MCHI Comments at 5. The IUSG submits that the profit motive already provides MSS operators with ample incentive in this regard. Instead, however, of letting valuable 2 GHz MSS spectrum lie fallow while MSS operators develop a customer base, the INEA will make available to them as much 2 GHz spectrum as they can coordinate and are willing to clear at the time they need it. Spectrum that has not yet been claimed by an MSS system also will not lie fallow, as 2 GHz terrestrial incumbent licensees can continue to use it.

[63] See Constellation Comments at 15. See also IUSG Comments at 20-22, 28-29.

affect the choice of waveform to be implemented over 2 GHz MSS systems.[64] Constellation cautions that "the technical and regulatory factors that drove four of the five Big LEO systems to select CDMA in the 1.6/2.4 GHz MSS bands are not the same as those facing applicants in the 2 GHz MSS bands. As a result, 2 GHz MSS applicants should not be required to make irrevocable elections between CDMA and TDMA prematurely."[65] To require MSS systems to commit to access technologies now -- in order that the Commission can develop a seemingly equitable band plan -- would prevent system operators from enjoying the benefits of the ongoing research that Constellation describes, or force the Commission to re-design entirely its 2 GHz MSS band plan in light of the results of such research in the future.[66]

Because neither the Commission nor the commenters address the issue of 2 GHz incumbent licensee relocation in any depth in this proceeding, it remains entirely unclear how such relocation would be undertaken in connection with the Flexible Band Arrangement. To all

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64 See Constellation Comments at 15.

65 Id.

66 Constellation argues that separate assignments of spectrum may not even have to be made for TDMA and CDMA system operations, if the density of TDMA carriers is not too high and/or enough isolation is provided by cross-polarization or CDMA processing gain. See Constellation Comments at 11. Globalstar goes farther, asserting that the Flexible Band Arrangement is faulty because CDMA systems can share with TDMA. See Globalstar Comments at 17. The IUSG agrees that, if Constellation and Globalstar are correct in this regard, the Flexible Band Arrangement is even more problematic than has been recognized to date. The belief, however, that CDMA and TDMA access technologies are incompatible dates at least to the Big LEO proceeding, and is widely held in the MSS industry. If Constellation and Globalstar have found otherwise, the IUSG urges them to submit their research promptly for public review.

appearances, however, implementation of that licensing plan would require the wholesale relocation of incumbent licensees from the 2 GHz bands -- a process that would be financially unfeasible for 2 GHz MSS system proponents, particularly if undertaken before they are much closer to operational status.[67] While the gradual relocation of incumbent licensees from the 2 GHz bands is at least theoretically possible under the Flexible Band Arrangement, the band plan proposed by the Commission is not designed with the channelization scheme of current terrestrial incumbent licensee operations in mind. As a result, that plan -- unlike the INEA -- would cause unnecessary disruption to incumbent licensee operations and produce substantial and avoidable relocation costs to 2 GHz MSS operators.

The IUSG supports Constellation's observation that the Flexible Band Arrangement would also limit the Commission's ability to adopt a "transitional" or gradual incumbent relocation policy of the kind specified in the INEA.[68] As Constellation argues, the Commission should provide MSS operators with flexibility to minimize the costs of terrestrial relocation rather than unnecessarily restricting their options.[69]

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67 Constellation agrees with the Commission that the Flexible Band Arrangement may limit the Commission's ability to implement a transitional relocation policy for incumbent licenses in the 2 GHz MSS bands. See Constellation Comments at 15-16 (citing NPRM, FCC 99-50, slip op. at 19 (¶ 39)).

68 See Constellation Comments at 15-16.

69 See id.

B. The Rigidity of the Traditional Band Arrangement Makes it Impracticable.

The Traditional Band Arrangement suffers from the same central flaw as does the Flexible Band Arrangement, i.e., the Commission's inability to predict the needs or viability of 2 GHz MSS systems years in advance. The problems stemming from that flaw are magnified, however, by the Traditional Band Arrangement's inflexibility.

Numerous parties observe, for example, that the Traditional Band Arrangement would ineluctably result in the warehousing of valuable 2 GHz MSS spectrum as system operators attempt, over the course of several years, to bring their systems to operational status.[70] While the Commission will presumably make its 2 GHz MSS spectrum assignments at the same time, not all satellite systems will implement simultaneously, if they ever do so at all. Under the Traditional Band Arrangement, early entrants to the 2 GHz MSS bands would be confined to the bands to which they were initially assigned regardless of growth in demand for their services, and would be prevented from obtaining additional spectrum with which to serve eager customers for the sake of systems that may well fail ever to provide service. Moreover, the spectrum reserved for later entrants would apparently lie fallow during the entire time that such system operators are attempting to satisfy their developmental milestones -- a process which, as Celsat observes, could take six or seven years under the milestones that the Commission has proposed.[71] The inefficiency

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[70] See, e.g., MCHI Comments at 9-10; Celsat Comments at 13.

[71] See Celsat Comments at 13. See also Inmarsat Comments at 11; TMI Comments at 7; MCHI Comments at 10. Globalstar is correct to add that this problem will only be exacerbated if the Commission fails to establish effective milestones for the (continued...)

inherent in such an approach is obvious.

While it does not advocate the Traditional Band Arrangement, MCHI maintains that the licensing plan would facilitate international coordination because it would afford certainty as to individual MSS system band assignments.[72] As even proponents of the Traditional Band Arrangement are forced to concede, however, the certain failure of some satellite system operators to reach operational status -- and the inevitable modifications by system operators to their system proposals -- will necessarily require changes to the band plan that will mandate its re-design.[73] The repeated and unavoidable modifications to any band plan established under the Commission's Traditional Band Arrangement would require repeated re-coordination of the band plan with foreign administrations. As indicated above, such re-coordinations will sap Commission resources, and will also test the goodwill of foreign governments. As also noted above, the INEA would prevent such difficulties by minimizing the need for system re-coordination.

As in the case of the Flexible Band Arrangement, neither commenters nor the Commission have indicated in any detail how relocation of incumbent licensees would be accomplished for purposes of implementing the Traditional Band Arrangement. Such information as commenters

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[71](...continued)
monitoring of 2 GHz MSS system deployment. See Globalstar Comments at 10-11.

[72] See MCHI Comments at 11.

[73] See, e.g., Iridium Comments at 23-24. Iridium's support for the Traditional Band Arrangement appears to depend on its conviction that all 2 GHz incumbent licensees can be relocated wholesale so as to permit the establishment of such a plan -- an operation which, as the IUSG has demonstrated, would be unfeasible. See id. at 17 & n. 24.

do offer is not encouraging. Globalstar's version of the Traditional Band Arrangement, for example, makes no attempt to take into account the actual current operations of incumbent licensees, and therefore might well require the first MSS entrant to the 2 GHz bands to relocate the operations of BAS incumbents in two current BAS channels rather than one simply in order to commence operations.[74]

Globalstar's suggestion that the Commission issue STAs to permit early entrants to operate anywhere in the 2 GHz MSS bands in advance of the effective date of a predetermined, comprehensive band plan is a puzzlingly incomplete solution to the problems of incumbent licensee relocation, as well as to the problem of spectrum warehousing.[75] If Globalstar believes that the issuance of STAs would permit equitable entry to the 2 GHz MSS bands, it is unclear why Globalstar objects to a Negotiated Entry Approach at all. Globalstar's proposed use of STAs

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74 See Globalstar Comments at 21. Specifically, Globalstar would have the Commission designate the 1990-2002.50 MHz bands for NGSO sharing, the 2002.5-2010 MHz bands for use by NGSO systems that cannot share spectrum, the 2017.5-2025 MHz bands for GSO sharing and the 2010-2017.50 MHz bands for GSO systems that cannot share. See id. The current Broadcast Auxiliary Service channelization scheme, however, involves one analog channel of 18 MHz from 1990-2008 MHz, and 17 MHz channels from 2008-2025 MHz, 2025-2042 MHz and so forth up to 2110 MHz. ICO, which expects to be the first system to enter the 2 GHz MSS market, will use TDMA access technology and thus would be relegated to the 2002.5-2010 MHz band under Globalstar's band scheme. In order to provide service in those frequencies, ICO would be forced to pay to relocate Broadcast Auxiliary Service licensees in both the 1990-2008 MHz and the 2008-2025 MHz bands -- even though the 7.5 MHz in which it would be allowed to operate could fit easily within a single current Broadcast Auxiliary Service channel.

75 See id. at 22; Celsat Comments at 11.

begs the question as to why the Commission should authorize temporary satellite operations that must be coordinated worldwide only to be re-coordinated later for the sake of a band plan that, itself, will be subject to re-coordination (and, most likely, further alteration by means of another rulemaking proceeding). Far easier and more efficient would be the implementation of the INEA, under which inter-system and international coordination is simplified and minimized and relocation of incumbent licensees can be undertaken on an as-needed basis by individual MSS system operators.

Constellation's attempts to inject a measure of spectrum efficiency into the inflexible Traditional Band Arrangement by encouraging sharing arrangements among systems with compatible access technologies cannot redeem the cumbersome licensing plan.[76] While such arrangements are certainly possible in theory, they would necessarily remain theoretical until such time as the various 2 GHz MSS system proposals become real satellite systems or fail to do so. As noted above, even the proposed systems that ultimately achieve operational status will not do so at the same time. Thus, while spectrum sharing is a laudable goal, negotiations to achieve it are likely to be a waste of system proponents' time until some clear indication is available of which systems will actually provide service. To the extent that the Commission bases a band plan on the results of any such negotiations, it is likely to find itself obliged to re-design and re-coordinate

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[76] See Constellation Comments at 20. Constellation's proposal --which would appear to require system proponents to decide now which access technology to employ -- is in curious conflict with its own observation that premature commitment by 2 GHz MSS system proponents to CDMA or TDMA technology would be detrimental to 2 GHz MSS service. See id. at 15.

that plan at a later date. In contrast, a sharing arrangement between two compatible systems under the INEA would disrupt no a priori band plan because none would exist.

C. Globalstar's 2 GHz MSS Spectrum Sharing Proposal is Unrealistic.

In its comments, Globalstar proposes that the Commission require all 2 GHz MSS system operators to adopt compatible sharing technologies so as to maximize spectrum efficiency and permit sharing by all systems across the 2 GHz MSS bands.[77] Globalstar's plan is essentially a version of the Negotiated Entry Approach, in that it would involve MSS operator entry into the 2 GHz bands based on inter-system coordination rather than on an a priori band plan imposed by the Commission. The plan also recognizes the benefit of licensing MSS systems across the 2 GHz MSS bands, a critical element of the INEA. Unfortunately, Globalstar's suggestions cannot practically be implemented at this stage of the development of 2 GHz MSS systems.

As it happens, the 2 GHz MSS system proponent that is closest to operational status has already selected an access technology that does not permit CDMA-like intersystem coordination. That system proponent, ICO, is simply too near to the launch date for its first satellite to undertake the redesign of its system in accordance with Globalstar's plan. The IUSG notes that the re-design of satellite systems to incorporate a different access technology would involve substantial costs, and would, if required, certainly delay service to the public.[78]

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[77] See Globalstar Comments at 9-12.

[78] As indicated above, Globalstar asserts that it has done research suggesting the possibility of spectrum sharing between TDMA and CDMA systems. See Globalstar Comments at 17. The IUSG is aware of no such studies, but

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In any event, the Commission held in its Report and Order in the Big LEO proceeding that decisions as to which access technology MSS systems should employ should be left to the marketplace.[79] The Commission must reach the same conclusion here, particularly in light of the great similarities between Big LEO and 2 GHz MSS systems, and the fact that entrants in both services will compete directly with one another.[80]

D. All Responsible Commenters Concur That to Use Auctions to Assign 2 GHz MSS Spectrum Would Be a Disastrous Mistake.

Every 2 GHz MSS Applicant urges the Commission to recognize that the auction of 2 GHz MSS spectrum would have terrible consequences for the provision of global MSS. Among other things, the Applicants warn that spectrum auctions would set a dangerous precedent for other nations to follow and would thereby raise the cost of obtaining access to spectrum

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[78](...continued)
encourages Globalstar to file with the Commission any that it may have.

[79] See Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands, 9 FCC Rcd 5936, 5954 & n.52 (1994).

[80] The IUSG also notes that establishing spectrum sharing across the 2 GHz MSS bands might be more difficult than it seems. Globalstar states that implementation of its plan would "require licensees to coordinate with each other initially to determine basic system parameters for sharing the 2 GHz spectrum." Globalstar Comments at 12. As Globalstar admits in the context of its discussion of the Commission's Negotiated Entry Approach, however, "because each system has a different timetable for development and launch, incentives to delay achieving agreement would still exist" in negotiations among all systems prior to establishment of a band plan. Id. at 19.

worldwide to the point that it would make global satellite service prohibitively expensive.[81]

The only commenter in this proceeding to advocate the auction of 2 GHz MSS spectrum is BellSouth Corporation ("BellSouth"), which, disregarding all policy implications, asserts that auctions would "give the Commission an indication of which applicants are serious about delivering MSS" and have the financial wherewithal to undertake the relocation of incumbent licensee facilities such as those of BellSouth.[82]

BellSouth seems to ignore the fact that the huge cost of purchasing access to 2 GHz MSS spectrum in the United States by means of auctions -- not to mention the cost of purchasing it throughout the world -- would leave little in the way of funds with which to undertake the relocation of incumbent licensee operations. In any event, the Commission cannot legally employ auctions for purposes of assigning spectrum unless it cannot resolve mutual exclusivity among applicants through other means -- and it is readily apparent that such means are available in this proceeding. The IUSG also notes that spectrum sharing appears to be possible between MSS and FS operations in the 2 GHz bands, and that relocation of FS operations therefore may not be necessary at all.

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81 See, e.g., MCHI Comments at 3, 14, 17-18; Globalstar Comments at 12-14; Inmarsat Comments at 12; Iridium Comments at 4-5, 24-29; Celsat Comments at 17-20; Constellation Comments at 6-7; TMI Comments at 8. See also Comments of the Satellite Industry Association at 3-4 ("SIA Comments").

82 BellSouth Comments at 4.

IV. The IUSG's Proposals Regarding Various Other Aspects of the INEA's Implementation Are Widely Supported by the Commenters.

A. No Commenter Objects to the General Use of the Big LEO Rules as a Template for 2 GHz MSS Service Rules.

The comments filed reflect wide support for the IUSG's proposals on various other aspects of the NPRM and the implementation of the INEA. For example, several commenters advocate, and no commenter opposes, the general use of the Big LEO rules as a template for 2 GHz MSS service rules.[83] Given the similarity and close relationship between the Big LEO and 2 GHz services, as well as the competition between proposed systems in the two services, the IUSG believes that the use of the Big LEO rules for this purpose would be only logical.

B. Numerous Parties Urge the Commission to Extend the License Term of 2 GHz MSS Systems to 12 Years or More, and/or to Grant Such Licensees a Renewal Expectancy.

There appears to be general agreement among the commenters that 2 GHz MSS satellites will have lifespans justifying a license term of at least 12 years.[84] Commenters also express support for the adoption of a renewal expectancy for 2 GHz MSS systems, given the nature and extent of the investment of time and resources required to launch such systems.[85] No party voiced opposition to these proposals, and the IUSG therefore urges the Commission to adopt them.

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83 See, e.g., Globalstar Comments at 3-4, 40-41; Inmarsat Comments at 16; Iridium Comments at 6; Constellation Comments at 23.

84 See, e.g., Globalstar Comments at 33; Inmarsat Comments at 17; Iridium Comments at 40-42; Boeing Comments at 37-38; ICO Comments at 40-41.

85 See, e.g., Iridium Comments at 40-42; IUSG Comments at 41-42.

C. Most Applicants Agree That GSO MSS System Operations Should Be Confined to Regional 2 GHz Spectrum.

Virtually all commenters, including Celsat, a GSO MSS system proponent, readily agree that GSO satellite system operations should be assigned to 2 GHz spectrum allocated internationally for regional use on grounds that geostationary satellites, by their nature, serve regions rather than the entire globe.[86]

There is no merit to Inmarsat's solitary claim that the "global" GSO service it provides via multiple satellites makes its geostationary satellite serving the Americas deserving of entry into the bands allocated for global 2 GHz MSS operations.[87] The fact that the satellites in Inmarsat's constellation that do not serve Region 2 may operate on frequencies other than those designated for regional use in the 2 GHz bands does not entitle Inmarsat to claim access to global 2 GHz MSS spectrum for purposes of serving the United States.[88] There is no technical reason why Inmarsat's satellites cannot function smoothly using different frequencies over different parts of the globe, particularly as they will be geostationary.

Inmarsat is capable of designing its satellites to feature frequency agility, or to tailor each satellite to match the allocations for its service region if GSO operations are assigned to Region 2 spectrum. Indeed, Inmarsat appears to assume in its comments that 2 GHz systems will be

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86 See, e.g., Celsat Comments at 6-7; Iridium Comments at 11; Constellation Comments at 8; TMI Comments at 4.

87 See Inmarsat Comments at 7-8.

88 See id. at 7.

equipped with frequency agility permitting operations in various parts of the 2 GHz bands.[89] Both the IUSG and TMI have argued that the incorporation of frequency agility into 2 GHz MSS systems would facilitate inter-system coordination.[90] While tailoring satellites to operate in particular bands in the United States may not permit global interchangeability of satellites, Inmarsat can still use as a substitute for any particular satellite a different satellite from the same region.[91] In addition, Inmarsat is free to employ in-orbit spares to increase its interchangeability options.

D. Most Applicants Support the Strict Enforcement of Developmental Milestones.

There is significant agreement among the commenters that the Commission should employ and strictly enforce developmental milestones for the 2 GHz MSS.[92] There is also significant support for the use of milestones in addition to those proposed by the Commission in the NPRM.[93] The IUSG would generally support the Commission's adoption of comprehensive milestones of the kind advocated by Globalstar, which will allow the Commission to keep careful tabs on the development of 2 GHz MSS systems and ensure that satellite systems do not

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89 See id. at 6.

90 See IUSG Comments at 7-8; TMI Comments at 4.

91 See Inmarsat Comments at 8.

92 See, e.g., Globalstar Comments at 37-38; Iridium Comments at 43; IUSG Comments at 38-40.

93 See, e.g., Globalstar Comments at 37-38; Iridium Comments at 43; IUSG Comments a 39.

warehouse spectrum. Of primary importance, for purposes of implementing the INEA, is a milestone one year prior to launch of a system's first satellite that a system proponent must satisfy in order to obtain the right to coordinate with prior Licensees (as described in Section II.A. above).[94]

The Commission must not be swayed by those parties that favor more lax milestones, an approach which would only delay the provision of service to the public and -- if the Commission were to fail to adopt the INEA -- could result in grievous spectrum warehousing. For example, the proposals of Constellation with regard to developmental milestones -- and its support of the Commission's Traditional Band Arrangement -- would allow Constellation to sit idly on the 2 GHz MSS spectrum that it hopes to be assigned for years while accomplishing almost nothing towards establishing its satellite system.[95]

The Commission simply cannot allow valuable spectrum to lie fallow for this length of time. It should therefore take Constellation's comments as a warning of the dilatory tactics that may be employed by 2 GHz MSS system proponents that are struggling to establish their

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94 See Globalstar Comments at 37-38. See also Iridium Comments at 43 (supporting use of Critical Design Review milestone).

95 See Constellation Comments at 25-26. More specifically, Constellation proposes that the date on which the 2 GHz MSS developmental milestone schedule starts be tailored to each licensee based on its current position, so that existing 1.6/2.4 GHz MSS licensees would be given schedules that begin at a date that fits into a "second generation or follow-on system launch scenario." Id. at 25. Under this scenario, as Constellation freely admits, the milestone schedule for its own satellite system would not even commence until July 2005. See id. at 26.

systems,[96] and should implement a thorough milestone regime such as that proposed by Globalstar as protection against such behavior.

The IUSG also notes that Iridium supports its view that 2 GHz MSS developmental milestones should run from the service link grant date for 2 GHz MSS systems, rather than the feeder or intersatellite link frequency grant date.[97] Iridium also agrees with the IUSG that reports relating to progress on meeting implementation milestones should be made publicly available.[98] As both these measures would hasten the implementation of a competitive 2 GHz MSS, the IUSG once again urges the Commission to adopt them.

E. Virtually all Applicants urge the Commission Not to Dispense As-Yet Unused 2 GHz MSS Spectrum Prematurely by Means of a Second 2 GHz MSS Processing Round.

Almost every Applicant directly urges the Commission to ensure that all first-round 2 GHz MSS systems have their spectrum needs satisfied before the Commission dispenses spectrum unused by another first-round system, if any, in a second 2 GHz MSS processing round.[99] As the

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96 In this regard, see MCHI Comments at 8 n.19 (favoring lax milestone requirements); Inmarsat Comments at 17 (opposing extensive milestones as a "needless reporting burden"); TMI Comments at 9 (favoring a two-year construction start period for GSO satellite systems "in light of international coordination and other complex regulatory issues which may have to be resolved").

97 See Iridium Comments at 43. Under the INEA, the Commission should commence system milestones on the date that a conditional authorization is issued to a system proponent.

98 See id. at 45.

99 See, e.g., MCHI Comments at 8 n.19; Globalstar Comments at 24; Inmarsat (continued...)

IUSG has explained, it is essential that the Commission not restrict the growth and potential of the currently proposed 2 GHz MSS systems by offering spectrum forfeited by unsuccessful systems to new applicants until the Commission has determined whether all 2 GHz MSS systems conditionally licensed under the INEA will or will not achieve operational status, and what their spectrum needs will be.[100] No commenter opposes this approach, and the Commission should therefore adopt it.

F. There is Significant Support for a Requirement That 2 GHz MSS Systems Feature Frequency Agility.

As the IUSG has explained, the incorporation into 2 GHz MSS satellite systems and Earth stations of frequency agility across at least 70 percent of the 2 GHz MSS bands is critical to implementation of any of the licensing plans proposed by the Commission in this proceeding -- particularly given the unavoidability of at least some adjustments to any plan that is ultimately chosen.[101] The IUSG's views in this regard are supported by the comments of Constellation, which argues that a frequency agility requirement would provide flexibility in implementing a 2 GHz MSS frequency assignment plan,[102] and by TMI and Inmarsat, which both assume that many

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[99](...continued)
Comments at 9; Iridium Comments at 18; Celsat Comments at 10; Constellation Comments at 9, 21; TMI Comments at 5.

[100] See IUSG Comments at 18-20.

[101] See id. at 7-8.

[102] See Constellation Comments at 10.